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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/892,139	06/26/2001	Yasuhiko Mizushima	P/1878-171	1950

32172 7590 03/22/2004

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EXAMINER

PHAN, HANH

ART UNIT PAPER NUMBER

2633

DATE MAILED: 03/22/2004

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/892,139

Applicant(s)

MIZUSHIMA ET AL.

Examiner

Hanh Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature **“a window at a prescribed portion of said case, wherein said optical transmitter is provided outside said case and said optical receiver is provided inside said case, and optical signals that are transmitted from said optical transmitter are received by said optical receiver by way of said windows”** in claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 6 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Laine (US Patent No. 6,252,690).

Regarding claims 1 and 10, referring to Figures 1 and 4, Laine discloses an optical data bus communication system of an artificial satellite, comprising:

an optical transmitter (i.e., optical transmitter DEM, Fig. 1);

a reflection means (i.e., reflection means 10 and 12, Fig. 1) that is provided on the entire inner surface of, or at prescribed locations inside, the case of the artificial satellite; and

an optical receiver (i.e., optical receiver DRC, Fig. 1) that receives optical signals that are transmitted from the optical transmitter both directly and after reflection and diffusing by the reflection means, and reproduces said optical signals from these received signals (see from col. 3, line 24 to col. 5, line 46).

Regarding claim 2, Laine further teaches a plurality of first devices (i.e., EQPT units E1-E3, Fig. 1) that are equipped with the optical transmitters (i.e., optical transmitters DEM1-DME3, Fig. 1) and a second device (i.e., EQPT unit EN, Fig. 1) that is equipped with the optical receiver (i.e., optical receiver DRCn, Fig. 1); wherein optical signals that are transmitted from each of the optical transmitters that are equipped in the plurality of first devices are received by the optical receiver that is equipped in the second device either directly or by way of the reflection means (col. 4, lines 17-32).

Regarding claim 3, Laine further teaches a first device (i.e., EQPT unit EN, Fig. 1) that is equipped with the optical transmitter (i.e., optical transmitter DEMn, Fig. 1) and a plurality of second devices (i.e., EQPT units E1-E3, Fig. 1) that are equipped with the optical receivers (i.e., optical receivers DRC1-3); wherein optical signals that are transmitted from the optical transmitter that is equipped in the first device are received by each of the optical receivers of the plurality of second devices either directly or by way of the reflection means (col. 4, lines 17-32).

Regarding claim 6, Laine further teaches the reflection means (i.e., mirrors 10 and 12, Fig. 1) is a polygon reflection mirror.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laine (US Patent No. 6,252,690) in view of Abate et al (US Patent No. 6,411,414).

Regarding claim 4, Laine teaches all the aspects of the claimed invention except fails to teach a plurality of first devices that are equipped with optical transmitters and a plurality of second devices that are equipped with optical receivers wherein the optical transmitters that are equipped in plurality of first devices each transmit optical signals of a differing wavelength, and the optical receivers that are equipped in the plurality of

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second devices each receive optical signals of a different wavelength. However, Abate teaches a plurality of first devices that are equipped with optical transmitters and a plurality of second devices that are equipped with optical receivers wherein the optical transmitters that are equipped in plurality of first devices each transmit optical signals of a differing wavelength, and the optical receivers that are equipped in the plurality of second devices each receive optical signals of a different wavelength (Fig. 3, col. 4, lines 54-67 and col. 5, lines 1-5). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the plurality of first devices that are equipped with optical transmitters and a plurality of second devices that are equipped with optical receivers wherein the optical transmitters that are equipped in plurality of first devices each transmit optical signals of a differing wavelength, and the optical receivers that are equipped in the plurality of second devices each receive optical signals of a different wavelength as taught by Abate in the system of Laine. One of ordinary skill in the art would have been motivated to do this since Abate suggests in column 4, lines 54-67 and col. 5, lines 1-5 that using such the plurality of first devices that are equipped with optical transmitters and a plurality of second devices that are equipped with optical receivers wherein the optical transmitters that are equipped in plurality of first devices each transmit optical signals of a differing wavelength, and the optical receivers that are equipped in the plurality of second devices each receive optical signals of a different wavelength have advantage of allowing reducing the interference between the signals.

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7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laine (US Patent No. 6,252,690) in view of Heflinger (US Patent No. 5,726,786).

Regarding claim 5, Laine teaches all the aspects of the claimed invention except fails to teach the optical transmitter is equipped with a wide-angle LED as a light source for transmission, and the optical receiver is equipped with a wide-angle photodiode for receiving light emitted from the LED. However, Heflinger teaches the optical transmitter is equipped with a wide-angle LED as a light source for transmission, and the optical receiver is equipped with a wide-angle photodiode for receiving light emitted from the LED (Figs. 1-4, col. 13, lines 60-67 and col. 14, lines 1-12). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical transmitter is equipped with a wide-angle LED as a light source for transmission, and the optical receiver is equipped with a wide-angle photodiode for receiving light emitted from the LED as taught by Heflinger in the system of Laine. One of ordinary skill in the art would have been motivated to do this since Heflinger suggests in column 13, lines 60-67 and col. 14, lines 1-12 that using such the optical transmitter is equipped with a wide-angle LED as a light source for transmission, and the optical receiver is equipped with a wide-angle photodiode for receiving light emitted from the LED has advantage of allowing providing a passive optical free space data bus and one transmitter can be transmit the signal to other receivers.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laine (US Patent No. 6,252,690) in view of Watson et al (US Patent No. 6,281,999).

Regarding claim 7, Laine teaches all the aspects of the claimed invention except fails to teach a window at a prescribed portion of the case, wherein the optical transmitter is provided outside the case and the optical receiver is provided inside the case, and optical signals that are transmitted from the optical transmitter are received by the optical receiver by way of the window. However, Watson teaches a window at a prescribed portion of the case, wherein the optical transmitter is provided outside the case and the optical receiver is provided inside the case, and optical signals that are transmitted from the optical transmitter are received by the optical receiver by way of the window (Figs. 2-6, col. 6, lines 7-15). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the window at a prescribed portion of the case, wherein the optical transmitter is provided outside the case and the optical receiver is provided inside the case, and optical signals that are transmitted from the optical transmitter are received by the optical receiver by way of the window as taught by Watson in the system of Laine. One of ordinary skill in the art would have been motivated to do this since Watson suggests in column 6, lines 7-15 that using such the window at a prescribed portion of the case, wherein the optical transmitter is provided outside the case and the optical receiver is provided inside the case, and optical signals that are transmitted from the optical transmitter are received by the optical receiver by way of the window has advantage of allowing the signals can be pass and providing optical data bus communication between the terminals.

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9. Claims 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laine (US Patent No. 6,252,690) in view of Ohhata et al (US Patent No. 6,304,357).

Regarding claims 8 and 11, Laine teaches all the aspects of the claimed invention except fails to teach the optical receiver comprises an O/E converter for converting received optical signals to electrical signals, again control means for converting electrical signals that are converted by the O/E converter to electrical signals of a required level; and a pulse width shaping means for converting electrical signals of a required level that are converted by the gain control means to digital signals of a prescribed pulse width. However, Ohhata teaches an optical receiver comprises an O/E converter for converting received optical signals to electrical signals, again control means for converting electrical signals that are converted by the O/E converter to electrical signals of a required level; and a pulse width shaping means for converting electrical signals of a required level that are converted by the gain control means to digital signals of a prescribed pulse width (Fig. 1, col. 1, lines 10-44). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the optical receiver comprises an O/E converter for converting received optical signals to electrical signals, again control means for converting electrical signals that are converted by the O/E converter to electrical signals of a required level; and a pulse width shaping means for converting electrical signals of a required level that are converted by the gain control means to digital signals of a prescribed pulse width as taught by Ohhata in the system of Laine. One of ordinary skill in the art would have

been motivated to do this since Ohhata suggests in column 1, lines 10-44 that using such the optical receiver comprises an O/E converter for converting received optical signals to electrical signals, again control means for converting electrical signals that are converted by the O/E converter to electrical signals of a required level; and a pulse width shaping means for converting electrical signals of a required level that are converted by the gain control means to digital signals of a prescribed pulse width has advantage of allowing increasing the power level of signal to a constant level and providing an optical receiver with high sensitivity and wide dynamic range.

Regarding claim 9, the combination of Laine and Ohhata teaches the pulse width shaping means comprises: a comparator that takes output of the gain control means as one input and a reference voltage as another input and, based on the positive or negative of the difference between these inputs, converts electrical signals of a required level that are output from said gain control means to digital signals; and a sampling means that performs sampling by a sampling signal of a prescribed frequency to convert digital signals that are converted by said comparator to digital signals of a prescribed pulse width (Fig. 1 of Ohhata, col. 1, lines 10-44).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

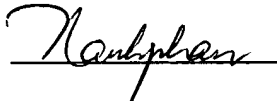
Ghaem (US Patent No. 5,335,361) discloses integrated circuit module with devices interconnected by electromagnetic waves.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (703)306-5840.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (703)305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

A handwritten signature in cursive script, appearing to read 'Hanh Phan', is written over a horizontal line.

Hanh Phan

03/09/2004